WHAT IS CLAIMED IS:

1. A tuning arrangement in a radio receiver, comprising:

a front-end circuit including a tunable band-pass filter that is capable of tunably selecting channels within at least one frequency band of an RF signal;

a noise source coupled to an input of the tunable band-pass filter for introducing a wide-band noise signal into the front-end circuit;

a signal detector coupled to an output of the front-end circuit for measuring at least one signal power associated with a filtered noise signal derived from the wide-band noise signal; and

a tuning controller coupled to the tunable band-pass filter by a tuning control signal;

wherein the tuning controller adjusts the tuning control signal in response to the at least one measured signal power for tuning the tunable band-pass filter to a desired filter response.

2. The arrangement of claim 1, further comprising:

a memory coupled to the signal detector and to the tuning controller for storing the at least one measured signal power for use by the tuning controller in adjusting the tuning control signal.

3. The arrangement of claim 1, wherein the tuning controller adjusts the tuning control signal in a manner such that the tuning control signal will cause the signal power associated with the filtered noise signal to achieve a maximum value.

4. The arrangement of claim 1, further comprising:

a down-converter having an input coupled to an output of the tunable band-pass filter, the down-converter for generating a baseband signal by mixing the filtered noise signal with a local oscillator signal.

5. The arrangement of claim 4, further comprising:

a channel selection filter having an input coupled to an output of the down-converter and having an output that corresponds to the output of the front-end circuit.

6. The arrangement of claim 5, wherein the channel selection filter is a low-pass filter.

7. The arrangement of claim 5, wherein the down-converter and channel selection filter together achieve a composite filter response having a center frequency that is approximately equal to a difference between a center frequency of the desired response of the tunable band-pass filter and the frequency of the local oscillator signal.

8. The arrangement of claim 1, wherein the tunable band-pass filter is tunable within a range spanning one predefined radio frequency band.

9. The arrangement of claim 1, wherein the tunable band-pass filter is tunable within a range spanning at least two predefined radio frequency bands.

10. The arrangement of claim 1, further comprising:

a first down-converter coupled to an output of the tunable band-pass filter for generating an intermediate frequency (IF) signal by mixing the filtered noise signal with a first local oscillator signal.

11. The arrangement of claim 10, further comprising:

a first channel selection filter having an input coupled to an output of the first down-converter.

12. The arrangement of claim 11, further comprising:

a second down-converter having an input coupled to an output of the first channel selection filter for generating a baseband signal by mixing the IF signal with a second local oscillator signal.

13. The arrangement of claim 12, further comprising:

a second channel selection filter having an input coupled to an output of the second down-converter and having an output that corresponds to the output of the front-end circuit.

14. The arrangement of claim 13, wherein the first channel selection filter is a band-pass filter and the second channel selection filter is a low-pass filter.

15. The arrangement of claim 13, wherein the first and second down-converters and the first and second channel selection filters together achieve a composite filter response having a center frequency that is approximately equal to a center frequency of the desired response of the tunable band-pass filter minus the frequencies of the first and second local oscillator signals.

16. The arrangement of claim 1, wherein the noise source is at least one of:

a stand-alone noise generator separate from the radio receiver;

a radio transmitter power amplifier operatively coupled to the radio receiver;

a dedicated noise power amplifier integrated into the radio receiver and used only during a radio tuning phase; and

a low noise amplifier for amplifying the RF signal during normal radio operation and configured for generating the wide-band noise signal during the radio tuning phase.

17. The arrangement of claim 1, wherein the tuning controller is at least one of:

a stand-alone processor separate from the radio receiver;

a dedicated microprocessor integrated into the radio receiver and used only during a radio tuning phase;

a receiver signal processor for processing the RF signal during normal radio operation and configured for adjusting the tuning control signal during the radio tuning phase; and

a software program executing on the receiver signal processor during the radio tuning phase.

18. The arrangement of claim 1, wherein the wide-band noise signal has a bandwidth that is at least equal to a tuning range of the tunable band-pass filter.

19. A tuning arrangement in a radio receiver, comprising:

a front-end circuit including a tunable band-pass filter that is capable of tunably selecting channels within at least one frequency band of an RF signal;

a local oscillator circuit for generating a local oscillator signal;

a switch for supplying a tuning signal derived from the local oscillator signal to an input of the tunable band-pass filter during a radio tuning phase; and

a signal processor for processing the RF signal during normal radio operation and for generating a control signal based on at least one signal characteristic of a filtered tuning signal derived from the tuning signal during the radio tuning phase;

wherein the control signal is supplied to the tunable band-pass filter for tuning the filter to a desired filter response.

20. The arrangement of claim 19, wherein the at least one signal characteristic includes an amplitude and a phase of the filtered tuning signal.

21. The arrangement of claim 20, wherein the signal processor adjusts the control signal in a manner such that there exists a correspondence between the at least one signal characteristic of the filtered tuning signal and a comparable at least one signal characteristic of the tuning signal.

22. The arrangement of claim 19, further comprising:

a modulator coupled between the switch and the local oscillator circuit for modulating the tuning signal during the tuning phase.

23. The arrangement of claim 22, wherein the tuning signal is modulated by one of amplitude, phase, and pulse modulation.

24. The arrangement of claim 19, further comprising:

an attenuator coupled between the switch and the local oscillator circuit for attenuating the tuning signal during the tuning phase.

25. The arrangement of claim 19, further comprising a phase shifter for shifting the phase of the tuning signal.

26. The arrangement of claim 19, further comprising:

a digital-to-analog converter coupled between the signal processor and the tunable band-pass filter for converting the control signal into an analog signal.

27. The arrangement of claim 19, further comprising:

at least one mixer for generating a baseband signal by mixing the filtered tuning signal with the local oscillator signal.

28. The arrangement of claim 19, wherein the tunable band-pass filter is tunable within a range spanning one predefined radio frequency band.

29. The arrangement of claim 19, wherein the tunable band-pass filter is tunable within a range spanning at least two predefined radio frequency bands.

30. The arrangement of claim 19, wherein the signal processor includes a software program for controlling the adjustment of the control signal during the radio tuning phase.

31. A method for tuning in a radio receiver, the method comprising the steps of:

generating a tuning signal;

supplying the tuning signal to a tunable band-pass filter included in the radio receiver to generate a filtered tuning signal;

sweeping a control signal of the tunable band-pass filter between a minimum tuning value and a maximum tuning value;

measuring at least one signal characteristic of the filtered tuning signal while sweeping the control signal between the minimum and maximum tuning values;

determining an optimal tuning value based upon the at least one measured signal characteristic; and

supplying the optimal tuning value to the control signal of the tunable band-pass filter to tune the filter to a desired filter response.

32. The method of claim 31, wherein the tuning signal is a wide-band noise signal.

33. The method of claim 32, wherein the wide-band noise signal has a bandwidth that is at least equal to a tuning range of the tunable band-pass filter.

34. The method of claim 32, wherein the at least one signal characteristic includes a signal power associated with the filtered tuning signal.

35. The method of claim 34, wherein supplying the optimal tuning value to the control signal of the tunable band-pass filter results in the signal power associated with the filtered tuning signal achieving a maximum value.

36. The method of claim 35, wherein the maximum value of the signal power associated with the filtered tuning signal is determined by computing a sliding average of the signal power.

37. The method of claim 31, wherein the tuning signal is derived from a same local oscillator signal used to generate a baseband signal from a received RF signal in the radio receiver during normal radio operation.

38. The method of claim 37, wherein the tuning signal is derived by modulating the local oscillator signal.

39. The method of claim 38, wherein the local oscillator signal is modulated by one of amplitude, phase, and pulse modulation.

40. The method of claim 38, wherein the at least one signal characteristic includes at least one of an amplitude and a phase of the filtered tuning signal.

41. The method of claim 40, wherein supplying the optimal tuning value to the control signal of the tunable band-pass filter results in a correspondence between the

at least one of the amplitude and phase of the filtered tuning signal and at least one of an amplitude and a phase of the tuning signal.

42. The method of claim 37, wherein the tuning signal is derived by attenuating the local oscillator signal.

43. The method of claim 37, further comprising the step of:

measuring a DC offset I_{DC} in an in-phase (I) signal derived from the filtered tuning signal, and a DC offset Q_{DC} in a quadrature-phase (Q) signal derived from the filtered tuning signal before supplying the tuning signal to the tunable band-pass filter.

44. The method of claim 43, wherein the at least one signal characteristic includes both a DC signal value I_{MEAS} in an in-phase (I) signal derived from the filtered tuning signal, and a DC signal value Q_{MEAS} in a quadrature-phase (Q) signal derived from the filtered tuning signal.

45. The method of claim 44, further comprising the step of calculating a signal power associated with the filtered tuning signal according to the equation:

$$\left(I_{MEAS} - I_{DC}\right)^2 + \left(Q_{MEAS} - Q_{DC}\right)^2$$

46. The method of claim 45, wherein supplying the optimal tuning value to the control signal of the tunable band-pass filter results in the signal power associated with the filtered tuning signal achieving a maximum value.

47. The method of claim 44, further comprising the step of calculating an amplitude associated with the filtered tuning signal according to the equation:

$$MAX\left(\left|I_{MEAS} - I_{DC}\right|, \left|Q_{MEAS} - Q_{DC}\right|\right)$$

48. The method of claim 47, wherein supplying the optimal tuning value to the control signal of the tunable band-pass filter results in the amplitude associated with the filtered tuning signal achieving a maximum value.

49. The method of claim 37, further comprising the step of:

determining an optimal phase shift of the tuning signal before supplying the tuning signal to the tunable band-pass filter by varying the phase of the tuning signal until a maximum amplitude is achieved in one of an in-phase (I) signal derived from the filtered tuning signal and a quadrature-phase (Q) signal derived from the filtered tuning signal;

wherein the optimal phase shift is applied to the tuning signal when measuring the at least one signal characteristic of the filtered tuning signal while sweeping the control signal between the minimum and maximum tuning values.

50. The method of claim 49, wherein the at least one signal characteristic includes an amplitude associated with the one of the I signal and the Q signal used in determining the optimal phase shift of the tuning signal.

51. The method of claim 50, wherein supplying the optimal tuning value to the control signal of the tunable band-pass filter results in the amplitude with the one of the I signal and the Q signal used in determining the optimal phase shift of the tuning signal achieving a maximum value.

52. The method of claim 31, wherein the method is implemented as part of training procedure performed during production of the radio receiver.

53. The method of claim 52, wherein the method is further implemented using a radio transmitter power amplifier operatively coupled to the radio receiver to generate the tuning signal during radio transmission.

54. The method of claim 31, wherein the method is implemented each time the radio receiver is switched on

55. The method of claim 31, wherein the method is implemented whenever the radio receiver receives network updates.

56. The method of claim 31, wherein the method is implemented prior to receiving a timeslot in the radio receiver.